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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,322	06/13/2001	Walter H. Runkis		5476

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EXAMINER

CLARDY, S

ART UNIT PAPER NUMBER

1616

DATE MAILED: 02/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/880,322	<b>Applicant(s)</b> RUNKIS, WALTER H.	
	<b>Examiner</b> S. Mark Clardy	<b>Art Unit</b> 1616	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,7-12 and 14-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-12 and 14-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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Claims 1-5, 7-12, and 14-26 are pending in this application which has also been filed as international application PCT/US02/18367. Applicant has filed an Appeal Brief in response to the final rejection and advisory action. In response to applicant's discussion concerning sulfamic acid reactions being mere possibilities, the finality is withdrawn in order to enter a new ground of rejection.

The pending claims listed above have been provided in the Appeal Brief appendix. The previous amendment (filed January 29, 2004), however, had replaced all prior versions and listings and had only claims 1-5, 7-12, and 14-21. Although there was no break in page numbers, claims 22-26 were probably inadvertently omitted in assembling the response. A new copy of all pending claims, to replace all prior versions, is requested. For now, the copy of the claims in the Appeal Brief appendix will be used.

Applicant's claims are drawn to:

1. Fertilizer compositions (claims 7-12) and methods of using them to treat plants (1-5) comprising solution stable macronutrients<sup>1</sup> and micronutrients<sup>2</sup> (p. 4-7). The compositions may be formed by reacting (claim 4) any of various minerals or inorganic compounds (oxides, hydroxides, carbonates) with either sulfamates ( $\text{HSO}_3\text{NRR}$ ) or amine-sulfamates ( $\text{R(NRR)}_n \cdot n \text{HSO}_3\text{NRR}$ ;  $n = 1$  to 3).
2. Methods using the composition to treat cells (claims 14-20). The cells may be plant, animal, or "living", i.e., any kind of cell whether prokaryote, eukaryote, etc. (p. 15).
3. Methods of making the fertilizer compositions (claims 21-26).

The method of making the compositions forms the basis of all claims herein inasmuch as the fertilizer and sulfamic acid components are referred to as being

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<sup>1</sup>Applicant includes both the conventional primary nutrients, NPK, and secondary nutrients, Ca, S, and Mg.

<sup>2</sup>Fe, Mn, B, Zn, Cu, Mo, Cl, Na (for halites), Co, Ni

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“chemically reacted”. Applicant appears to argue in response to the rejection of record that merely mixing the components will not induce them to react. This, however, appears to be exactly what has been done herein. One of two situations must therefore exist: First, applicant has “merely” mixed fertilizer and sulfamic acid components and a chemical reaction has proceeded spontaneously. It would necessarily follow that this reaction would occur whenever these components are mixed. Alternatively, applicant has omitted a procedural step which is necessary to induce the components to react.

If applicant has omitted a reaction step, the following rejection is necessary.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 7-12, and 14-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. If the fertilizer and sulfamic acid components do not spontaneously react when combined, applicant has failed to provide an enabling disclosure because there seem to be other catalysts or conditions that have not been set forth in the disclosure that are necessary for the reaction to proceed.

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If, on the other hand, the reaction proceeds as described in the specification with nothing more than mixing the fertilizer and sulfamic acid components, then the following rejections are necessary:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 2, 5, 7, 8, 11, 12, 14, 15, 18, 20, 21, 22, 25, and 26 are rejected under 35 U.S.C. 102(a), (b), and (e) as being anticipated by Woodhouse (US 2,237,826).

Woodhouse teaches the addition of sulfamic acid or salts thereof to aqueous fertilizer compositions comprising ammonium, phosphate, and other conventional fertilizer materials. Fertilizer components may comprise calcium, magnesium, sulfate, phosphate, potassium (potash), ammonium, and nitrate species (columns 2-3). Applicant has argued that Woodhouse combined these materials “merely for the purposes of nitrifying liquid fertilizer solutions”. It is irrelevant why Woodhouse combined fertilizer

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and sulfamic acid components. The fact remains that they were combined, thus the instant invention is anticipated.

Claims 7-12 and 21-26 are rejected under 35 U.S.C. 102(a), (b), and (e) as being anticipated by Kirk-Othmer<sup>3</sup>.

Kirk-Othmer teaches that “sulfamic acid readily forms various metal sulfamates by reaction with the metal or the respective carbonates, oxides, or hydroxides” (p. 122), and exemplary reactions are provided for sulfamic acid with zinc (metal), calcium carbonate, iron (II) oxide, and nickel (II) hydroxide. On p. 124, it is disclosed that “primary, secondary, and tertiary amines react with sulfamic acid to form ammonium salts.” Finally, “sulfamates are formed readily by the reaction of sulfamic acid and the appropriate metal or its oxide, hydroxide, or carbonate... Sulfamates prepared from weak bases form acidic solutions, whereas those prepared from strong bases produce neutral solutions... Inorganic sulfamates are quite water soluble, except for the basic mercury salt.” Relative solubilities are provided for various sulfamates, including ammonium, sodium, magnesium calcium and zinc (p. 125). Regarding “plant growth promoting amounts” in the claims, it is noted that any concentration of known plant nutrients would provide a “plant growth promoting amount”, and that any amount of water in such compositions would similarly be a “plant growth promoting amount”.

Claims 7 and 9-12 are rejected under 35 U.S.C. 102(a), (b), and (e) as being anticipated by Fischer (US 3,321,273).

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<sup>3</sup> Kirk-Othmer. *Encyclopedia of Chemical Technology*, 4<sup>th</sup> ed., vol 23. “Sulfamic acid and sulfamates”, p. 120-133. 1997.

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Fischer teaches the methods of making metal sulfamate compositions by reacting metals (Ni, Co, Fr, Pb, Cu, Cd, Zn, Al) with sulfamic acid (col 1, lines 35, through col 2, line 5). Several of the listed metals are known micronutrients for plants; it is irrelevant whether the references discloses them as such. Again, any amount of a plant growth material is seen as a plant growth promoting amount, especially in view of the fact that such micronutrients are useful in trace amounts.

Claims 7, 9, and 14 are rejected under 35 U.S.C. 102(a), (b), and (e) as being anticipated by Shibe et al (US 3,344,018).

Shibe et al teach biocidal quaternary ammonium compositions comprising the reaction product of quaternary ammonium compounds such as alkyl quaternaries (col 1, lines 19-50) and an organic sulfamate (col 2, lines 8-14).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-5, 7-12, and 14-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Woodhouse (US 2,237,826) and Kirk Othmer, both of which have been discussed above.

One of ordinary skill in the art would be motivated to combine these references because Woodhouse discloses fertilizer compositions comprising the reaction product of fertilizer compounds with sulfamic acid, the properties and synthesis of which are taught in Kirk-Othmer.

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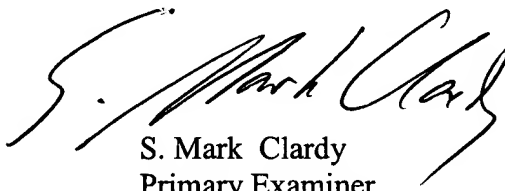
Thus it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have combined applicant's fertilizer components with sulfamic acid because Woodhouse teaches that such compositions are useful as fertilizers. Kirk-Othmer teaches that such compounds may be made by the addition of sulfamic acid or derivatives thereof, to metals or their carbonates, oxides, or hydroxides. Using the resultant materials to provide nutrients to plants is also seen as treating plant cells.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mark Clardy whose telephone number is 571-272-0611. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on 571-272-0887. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Mark Clardy  
Primary Examiner  
Art Unit 1616

January 28, 2005